

Writing about Original Research

Over the years *Law Library Journal* editors and authors have devoted a fair amount of the *Journal's* space to exhorting law librarians to write for publication.¹ As an institution, AALL has encouraged members to write, through sponsorship of various publication series and the Call for Papers program. But, while we promote writing (and occasionally write about writing), we provide little practical advice about writing effectively for publication.

For the traditional forms of library literature—research guides, bibliographies, historical treatments, and commentaries—there are probably enough models to which librarian writers can turn for help in developing articles. There is less guidance, however, for the writer who wishes to produce an article reporting the results of original research.

Granted, most of the literature of librarianship is not reports of original research results—the sorts of articles that are associated with the hard sciences. Yet, a look at the general library literature reveals a surprising amount of report literature, and the number of surveys and questionnaires arriving in any library director's mail indicates that more such reports are on the way. *Law Library Journal* has published a number of articles in recent years reporting the results of original research into matters such as collection use and deterioration, professional status, internal procedures, volume count methodologies, staff burnout, effectiveness of CALR systems, and citation patterns.² It seems likely that an

1. See, e.g., Carter, *Commentary: Writing is Good for You and You Forget the Pain*, 78 LAW LIBR. J. 197; Danner, *From the Editor*, 77 LAW LIBR. J. 431 (1984-85); Dunn, *The Law Librarian's Obligation to Publish*, 75 LAW LIBR. J. 225 (1982).

2. E.g., Slinger, *The Career Paths and Education of Current Academic Law Library Directors*, 80 LAW LIBR. J. 217 (1988); Kawamoto, *File Analysis for Retrospective Conversion: The Case of the California State Library*, 79 LAW LIBR. J. 455 (1987); Flores, *Volume Count: A Survey of Practice and Opinion from Academic Law Libraries*, 79 LAW LIBR. J. 241 (1987); Nelson, *Burnout: A Reality for Law Librarians?*, 79 LAW LIBR. J. 267 (1987); Trelles & Bailey, *Autonomy, Librarian Status, and Librarian Tenure in Law School Libraries: The State of the Art, 1984*, 78 LAW LIBR. J. 605 (1986); Matthews, *Quality Control for Archival Tapes*, 78 LAW LIBR. J. 711 (1986); Carrick, *Silk v. Corduroy: The Status of Men and Women in Law Librarianship*, 78 LAW LIBR. J. 425 (1986); Edwards, *Book Losses and Mutilation in Law School Libraries*, 78 LAW LIBR. J. 443 (1986); Stoppel, *Superseded Material in the Law Library*, 78 LAW LIBR. J. 465 (1986); Nainis & Bedard, *Preservation Book Survey in an Academic Law Library*, 78 LAW LIBR. J. 243 (1986); Dabney, *The Curse of Thamuz: An Analysis of Full-Text Legal Document Retrieval*, 78 LAW LIBR. J. 5 (1986); Goldblatt, *Current Legal Periodicals: A Use Study*, 78 LAW LIBR. J. 55 (1986); Hanley, *AALL Scholarships and Grants, 1984*:

increasingly important part of our literature will be made up of reports on research results.

In most research projects, a researcher starts with at least an informal hypothesis to be proved or disproved by the research. Other projects are designed to gather data without preconceived notions about the results. In such instances, the researcher's goal will be to uncover and describe the trend of the data. In either case, the validity of the research hinges on how well the research instrument fits the chosen task; the usefulness of the research to others, however, will depend on the researcher's analytical and interpretive skills, as expressed in formal presentation of the results.

Articles reporting on research are notoriously difficult to write. An original idea for a simple research project creates a new set of problems when the research is completed and the researcher wants to communicate the results to a critical audience of professional peers. The researcher (now writer) must decide how to classify, categorize, and summarize the data obtained; how much raw data to include; whether to construct tables or graphs to display the results; how much the data really explains; how much the results can be generalized; whether a cause and effect relationship can be established; whether the results allow for predictability. In writing up the results of the research project, the researcher becomes immediately aware of the fine line between claiming too much or not enough for the results of the work, and of the need to support all claims that are made.

A likely place to look for help in this type of writing is the sciences; a place to start is a recent book by Sylvester P. Carter, *Writing for Your Peers: The Primary Journal Paper* (Praeger, 1987). Although written for scientific and technical writers, the Carter book will help librarian researchers get through the process of transforming survey results and other raw data into written reports that will be read with interest by fellow professionals. Looking at the book in advance will help the researcher to think about the reporting and writing processes and improve the design of the project.

Carter identifies three characteristics of the research paper: scientific rigor, professional ethics, and efficient reporting of research results (pp. 8-14). The first two are obvious, but necessary, components of the research process. The scientific method is more strictly adhered to in some areas of research than in others, but regardless of subject matter, the researcher must ensure that the methods employed are sound and that the results meet the goal of the research. Ethical considerations become involved when the

Who Applied and Who Was Chosen, 77 LAW LIBR. J. 521 (1984-85); Daniels, "Far Beyond the Law Reports": Secondary Source Citations in United States Supreme Court Opinions October Terms 1900, 1940, and 1978, 76 LAW LIBR. J. 1 (1983).

researcher is tempted to read too much into the data, to generalize too widely from a small sample, or to not acknowledge the contributions of earlier researchers who have dealt with the same questions.

Carter devotes most of his book to the third characteristic—efficient reporting of research results—and provides much practical advice. His major focus is on the key portions of the research article—effective and efficient reporting of data, and discussion of the implications of the research—but Carter also writes usefully about features standard to any journal article, such as the introduction and conclusion. He notes, for example, that the primary purpose of the introduction is to announce the contribution the article will make (p. 24). How will this article be distinguished from others on the topic? How do the results reported here relate to existing knowledge? Carter notes that the introduction needs to provide not only adequate references to related literature, but also a discussion of the literature to show the author's knowledge and to provide the framework for one's own contribution (pp. 31-34). The introduction should provide enough additional background to communicate an idea of the potential significance of the research. At the end of the introduction should come a preview of how the rest of the article is organized, both to orient the reader and to provide motivation to read on.³ Carter advises writers to resist the temptation to write the introduction after the rest of the paper; writing the introduction first helps crystallize the author's thinking and influences how the rest of the paper will be written (p. 42).

The closing of the article, whether or not labelled "conclusion," is important to a successful report because it gives readers their last impression of the article. The end of a research article should motivate the reader to think about extending the author's results or exploring alternative approaches in the same area. The conclusion should remind readers of what they have been told ("it was shown that . . ."), discuss the significance of the results, and suggest further directions for research (pp. 93-96).⁴

The major problems for the nonscientific writer, however, are in presenting the data effectively and in expressing the conclusions to be drawn from the research. This requires communication of the theoretical background to the research: what contentions are to be proved (pp. 45-57)? The writer needs to identify explicitly the premises and assumptions on which the research progressed, but in so doing should choose language carefully and provide examples. Even highly qualified readers may not

3. See, e.g. the introductions to Nainis & Bedard, *supra* note 2, at 243-46; Daniels, *supra* note 2, at 1-4.

4. See, e.g., the conclusion to Dabney, *supra* note 2, at 39-40.

understand the terminology and jargon of a speciality within their field.⁵

Moving on to the presentation of research results, Carter stresses a point obvious to any journal editor. There are countless new ways to manipulate and display data, but it is hard to know whether apparent weaknesses in a paper are the result of failures in methodology or of poor descriptions of the work. As Carter puts it, there has been great progress in statistics and computational sciences, but the "proclivities of human beings for deceiving themselves have not disappeared" (p. 65).

What kinds of information should the writer provide to enable readers to understand and evaluate the results of the research? To begin, the writer should be explicit about the purposes of the research (pp. 66-67). Was it conducted to provide data to support a proposed theory, or simply to provide a set of useful data without theory building?⁶ Specifying the purpose provides a context for the reader to judge how well the results fulfilled the objectives of the study. The researcher needs also to justify the research instrument in order to convince the reader that the method was capable of capturing the data sought, and to describe briefly the conditions under which the individual data were gathered (pp. 68-71).⁷

How should the raw data itself be displayed and presented? The amount and form should be based on what the writer intends to do with it in the report and what use the reader is expected to make of it. Carter's rule is never to provide data without a stated purpose, and not to expect readers or editors to understand the value of data for which the author has failed to demonstrate an understanding in the text (p. 73).⁸ In using data to demonstrate the validity of hypotheses, the writer should omit all mention of data not relevant to the explanation, yet generously provide elsewhere all uncovered data that has its own intrinsic value.⁹

5. Without an accompanying definition, would all law librarians understand what a cataloger means by the term "de-duping" as applied to OCLC archival tapes? See Matthews, *supra* note 2, at 713.

6. Much published research in law librarianship has the stated purpose of data gathering. See, e.g., Stoppel, *supra* note 2, at 468.

7. Most commonly, research reported in *Law Library Journal* over the past five years has been based on the results of surveys or questionnaires. Exceptions among the articles cited above in note 2 are Slinger (analysis of published biographical data); Kawamoto (comparison of information in library files); Matthews (analysis of records on archival tapes); Nainis & Bedard (sampling of books in library collection); Dabney (testing results of CALR search); Goldblatt (analysis of circulation records); Hanley (study of information on application forms); Daniels (analysis of materials cited in court opinions).

8. For an article with good integration of data and text, and effective use of tables, figures, and textual presentation, see Nainis & Bedard, *supra* note 2.

9. One device for incorporating a variety of useful data is the composite profile. See, e.g., Slinger, *supra* note 2, at 230; Hanley, *supra* note 2, at 539-42.

How much raw data should be included? Certainly enough so that some individual values can be seen. Summarized data will not always reveal the entire picture and may distort it. Reporting percentages without raw data equivalents may lead to a distorted picture if the sample is small. The appropriate amount of data to include also relates to its meaningfulness. If its meaning is uncertain to the researcher, providing great amounts of data will not convince the reader either. As Carter points out, "Computers have made the generation of data so easy that some authors attempt to overwhelm readers with sheer quantity" (p. 74).

How should the selected data be presented? There are a variety of ways to reduce and present data for display, including textual discussion, tables, or figures and graphs. The way chosen should allow the reader easily to identify the significant trends and patterns and to make comparisons both with earlier work and with other data within the paper itself. Carter also points out that efficiencies in presentation are not furthered by displaying data both in tables and in figures, and then describing the same results in text. Any such repetition is justified only on the basis of significant benefits to the reader (pp. 74-76).

Finally, there is the problem of deriving information from the data gathered. What is the author claiming for the results of the research? Carter indicates that there are three distinct claims that an author can make, but that it is essential for the report writer clearly to distinguish among them (p. 77-79). The first is that the researcher is reporting observations arising from the experimental data. The writer is simply making readers aware of facts without offering inferences or opinions about their significance.¹⁰ A second possibility is inferring conclusions from the data. This requires inductive reasoning and implies some level of predictability. The basis for such claims must be in strict adherence to scientific method and must have sufficient observations to allow the researcher to generalize. The third is offering informed opinion about the results. Although no predictions are offered, the informed opinion will trigger ideas for further research and will provide insight based on the writer's mastery of the subject area and ability to interpret the data uncovered in this research.¹¹ Such statements must be labeled as opinion, and it must not be left to the reader to determine whether what is offered are reasonable interpretations of the available data or statements of the only possible interpretations.

The process of original research in any discipline is difficult. Research design, creating effective instruments, carrying out the project, organizing

10. See, e.g., Slinger, *supra* note 2.

11. See, e.g., Edwards, *supra* note 2.

and interpreting the data, writing up the results: all pose their own problems for the researcher. Yet, if we are concerned about the possibilities for a "science of law librarianship," we need to consider all aspects of the research process, including the written report, in order to move forward in the development of a body of research.

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